

# Report Plexos Project

Andreas Johann Hörmer, Eva Vontobel, Adam Novacek

March 27, 2014

TET4135 Energiplanlegging

Lab group:

- Andreas Johann Hörmer
- Eva Vontobel
- Adam Novacek

Report delivered:

Contents

1 Introduction 1

2 Theory 1

2.1 Methods in present work . . . . . 1

2.2 intermittent resource handling . . . . . 1

2.3 reservoir hydro handling . . . . . 1

2.4 region exchange . . . . . 1

2.4.1 Advantages . . . . . 1

2.4.2 Disadvantages . . . . . 1

2.5 investment initiatives for renewable sources . . . . . 1

3 Analysis 2

4 Conclusion 3

## Abstract

# 1 Introduction

## 2 Theory

### 2.1 Methods in present work

### 2.2 intermittent resource handling

### 2.3 reservoir hydro handling

### 2.4 region exchange

#### 2.4.1 Advantages

#### 2.4.2 Disadvantages

### 2.5 investment initiatives for renewable sources

- investment support

One time financial support to cover part of the investment costs. The support is large enough to make the investment profitable. Some differences can be used for fine tuning, e.g. more support for wind power in areas with less wind.

- advantages

- \* possibility of finetuning

- disadvantages

- \* requires much capital at beginning
    - \* no incentive to reduce
    - \* limited security for investor
    - \* in case of fine tuning: much administration

- tendering

Auction for a certain amount of capacity which shall be installed. Won by the offers requiring the lowest support. This initiative is also done as investment support, but with a tendering procedure. Providers are asked for support bids, the cheapest one gets the support.

- advantages

- \* competition between suppliers, therefore lower costs than investment support

- disadvantages

- \* same as investment support, but
    - \* less predictability
    - \* prone to corruption

- feed-in tariff

A fixed price for feed-in kWh is paid for a predefined period.

- advantages

- \* promotion of mid-term and long-term technologies
    - \* investment security for producer

- disadvantages

- \* possible risk of technology overfunding

- premium

Like feed-in tariff, but instead of a fixed price an additional amount per kWh is paid to the producer.

- advantages
  - \* market based
- disadvantages
  - \* less certainty than feed-in tariff
- green certificates

## **3 Analysis**

### **3.1 MT Schedule**

#### **3.1.1 normal inflow scenario**

optimal generation dispatch

transmission

emission

price

#### **3.1.2 high inflow scenario**

#### **3.1.3 low inflow scenario**

### **3.2 Expansion planning**

## 4 Conclusion